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Date Out: AUG 12 1991

TO: Lois Rossi/Carol Peterson
Product Manager #74
Registration Division (H7505C)

FROM: Akiva D. Abramovitch, Ph.D., Section Chief
Environmental Chemistry Review Section #3
Environmental Fate & Ground Water Branch/EFED (H7507C)

THRU: Hank Jacoby, Chief
Environmental Fate & Ground Water Branch
Environmental Fate and Effects Division (H7507C)

Attached, please find the EFGWB review of...

Reg./File # : Submission # S392975

Chemical Name: Diuron

Type Product : Herbicide

Product Name : Karmex Herbicide, Krovar Herbicide

Company Name : Du Pont

Purpose : Registrant requests waivers on several data requirements.

Date Received: 3/25/91 EFGWB#: 91-0467 Time (days): 3.0

Deferrals to:

_____ EEB/EFED _____ DEB/HED _____ TB1/HED

_____ SIPS/EFED _____ OREB/HED _____ TB2/HED

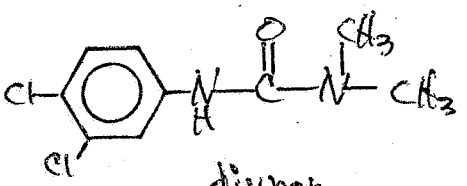
1.0 CHEMICAL:

Common Name- Diuron

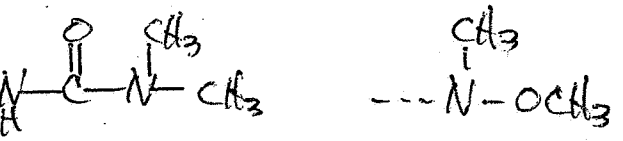
Chemical Name- (3-(-3,4-dichloro-phenyl)-1,1-dimethylurea)

Trade Name- Karmex, Krovar Herbicides

Chemical Structure-



diuron



linuron

2.0 TEST MATERIAL: Not applicable.

3.0 STUDY/ACTION TYPE: The registrant is requesting waivers on several data requirements.

4.0 STUDY/DOCUMENT IDENTIFICATION:

1. Letter from Du Pont dated 18 Jan 1991 outlining the waiver requests.

2. Copy of "Laboratory Studies of Phenyl-^{14}C(u) Linuron Bioconcentration in Bluegill Sunfish", Haskell Laboratory Report No. 575-84, 12/21/84.

3. Copy of published paper "Accumulation of Diuron in Fish". Koeman, J.H. et al., Ghent. Rijksfaculteit Landbouwwetenschappen. Mededelingen 34, 428-33 (1969).

5.0 REVIEWED BY:

Herbert L. Manning, Ph.D.
Microbiologist, EFGWB/EFED

Signature: Herbert L. Manning
Date: AUG 9 1991

6.0 APPROVED BY:

Akiva D. Abramovitch, Ph.D., Chief
Section 3, EFGWB/EFED

Signature: Akiva Abramovitch
Date: AUG 9 1991

7.0 CONCLUSION:

7.1 EFGWB concludes that the following studies may be waived:

- Field Volatility (163-3)
- Irrigated Crop Accumulation (165-3)
- Bioaccumulation in Fish (165-4)
- Bioaccumulation Aquatic Non-Target Organisms (165-5)

7.2 EFGWB concludes that we may agree with the registrant to waive the Accumulation in Field Rotational Crop data when we review the Accumulation in Confined Rotational Crop study (MRID #41464801). Until that time, the field rotational crop study is reserved.

NOTE TO PM: The Confined Rotational Crop study (MRID #41464801) cited by the registrant has not been reviewed by EFGWB (not in our files). Please send this submission to us for review.

8.0 RECOMMENDATION:

8.1 Inform the registrant of EFGWB's conclusions in Sections 7.1 and 7.2 above.

9.0 BACKGROUND:

A. Introduction- Diuron is a substituted urea herbicide for the control of a wide variety of annual and perennial broadleaved and grassy weeds on both crop and noncrop sites. Usually, diuron is applied to the soil prior to germination of weed seeds or when weeds are in an active growth stage. Adequate moisture must be present to allow movement of the herbicide into the root zone. Diuron also has a limited contact action and is normally applied with a surfactant when used in this manner. The mechanism of action is the inhibition of photosynthesis. Diuron is registered for use on numerous crop sites such as forage crops, field crops, fruits, vegetables, nuts, and ornamental crops. In non-crop applications, diuron is used on industrial sites, on rights-of-way, around farm buildings, and on irrigation and drainage ditches.

B. Direction for Use- Not applicable.

10.0 DISCUSSION OF REGISTRANT'S REQUESTS:

10.1 WAIVING OF CERTAIN DATA REQUIREMENTS-

1. Field Volatility (163-3)- In a previous review (3/13/91, EFGWB #91-0326), Laboratory Volatility data (163-2) were waived on the basis of diuron's low vapor pressure (8.6×10^{-9} mm Hg at 25 C) and low acute toxicities (Toxicity 2 Category III or IV).

Field volatility data are tiered, and are only required when the laboratory study indicates field data are needed. However, since the Laboratory Volatility data requirement was waived, a field study is no longer needed and it may be waived.

2. Field Rotational Crop (165-2)- The registrant's position may be summarized as follows:

a) In a cited, confined rotational crop study (MRID #41464801), which has not been reviewed by EFGWB, only the wheat straw fraction contained accumulated residues (1.2 ppm) after 4-months aging. Aging of the treated soil (rotational interval) for 12-months showed residues of 0.66 ppm.

b) A tolerance of 2 ppm has been granted for residues of diuron on wheat straw.

c) Citrus and non-crop weed control are the major uses of diuron, neither of which involve crop rotation.

EFGWB may agree with the registrant to waive the field rotational crop data after we have reviewed the confined rotational crop data. Until that time, the field crop data is reserved.

3. Accumulation in Irrigated Crop (165-3)- The registrant's position may be summarized as follows:

a) The confined rotational crop data cited above indicate that diuron residues only accumulated in wheat straw of the rotated crops and tolerances have been established on this crop fraction.

b) Irrigation would expose the crop to a much lower rate of diuron than would direct application.

c) Citrus and non-crop weed control are the major uses of diuron, neither of which are irrigated with previously treated waters.

EFGWB agrees with the registrant and has no objection to a waiver of the irrigated crop data.

4. Bioaccumulation in Fish (165-4)- The registrant's position may be summarized as follows:

a) Diuron has a K_{OW} of about 700 (less than the "trigger" value of 1000 in our Subdivision N Guidelines), indicating it has some (although probably low) capacity to bioaccumulate in fish.

b) A published research paper (Koeman, et al. 1969) reviewed (not found acceptable) for the Registration Standard yielded the supplemental information that diuron accumulated in carp (a bottom-feeding fish), with the Bioconcentration Factor range for 10 fish between 35X and 150X (in whole fish). Fish were exposed initially to 0.4 ppm diuron for five months.

c) The registrant also cites a flow-through study on the bioaccumulation of linuron, a closely related chemical, in bluegill sunfish. The low exposure dose was 0.088-0.136 over 28 days. Peak Bioconcentration Factors were: 34X for muscle, 240X for viscera, 49X for whole fish, and 39X for remaining carcass.

EFGWB agrees with the registrant and has no objection to a waiver of the Bioaccumulation in Fish data.

5. Bioaccumulation in Aquatic Non-Target Organisms (165-5)

The registrant requests this study be put on reserve pending the results of the EEB data requirement 72-6 (Aquatic Organism Accumulation Test). However, the EEB no longer requires the study since it is very similar to 165-5 study (Bioaccumulation in Aquatic Non-Target Organisms). In addition, since EFGWB is waiving the Bioaccumulation in Fish study, we also will waive the Bioaccumulation in Aquatic Non-Target Organmism data.

11.0 COMPLETION OF ONE-LINER: Not applicable.

12.0 CBI APPENDIX: There is no CBI in this review.